

Molecular investigation of a gene encoding organic solvent-tolerant alkaline protease from *Pseudomonas aeruginosa* strain K

ABSTRACT

A gene encoding an organic solvent-stable protease was amplified from *Pseudomonas aeruginosa* strain K by polymerase chain reaction using consensus primers based on multiple sequence alignment of alkaline and metalloprotease genes from *Pseudomonas* species. The gene, which consisted of 1440 bp nucleotides and deduced 479 amino acid residues, was successfully expressed in pGEX-4T-1 expression system in the presence of 1.0 mM IPTG, after an incubation of 6 h at 37 degrees C. Under these conditions, the recombinant strain K protease was, subsequently, released into the periplasm of *E. coli* BL21 (DE3) with an optimum proteolytic activity detected at 1.0112 U/ml. To date, this is the first reported expression of alkaline protease (*aprA*) with such remarkable property in *Escherichia coli*.

Keyword: *Pseudomonas aeruginosa* strain K; Organic solvent-tolerant protease gene; *aprA*; Expression